OPTIONAL COURSE

BIOLOGICAL SCIENCE II

OBJECTIVES:

At the end of the course, the student- teachers will be able to

- understand the basic Principles of Biology
- acquaint themselves with Biology curriculum at the higher secondary stage
- acquaint themselves with new developments in Biology
- understand the nature and scope of Biology

UNIT I Introduction

History of Biology- Contributions of Great Biologists : Charles Darwin, Louis Pasteur, Robert koth, Luc Montagnier and Gallo, Dr. Ian Wilmut.

UNIT II New Developments

Bio-Technology, Bio-chemistry, Bio-physics, Developmental Biology, Behaviour and Neurophysiology, Population genetics and Evolution, Genetic Engineering Ecology and Conservation, New Medicine and Radio isotopes.

UNIT III Class Room Interaction Analysis

Nature, Objectives – Assumptions- Flanders' interaction analysis – Concepts and Principles of teacher influence. Teaching behavior & learning Goals- Implications and Limitations – Reciprocal category system – Equivalent Talk category system.

UNIT IV Reflective practice and the Teacher

Reflective practices- Meaning- Definition – Need for reflection – benefits of reflective practices-evaluation techniques and records of reflective practices.

UNIT V Models of Teaching Biological Science

Introduction- Definition – Characteristics –Functions- sources- elements of a model,- Types: Inquiry Training Model, Concept Attainment Model.

UNIT VI Special Programmes in biological science

Enrichment and remedial science programmes- programme for the gifted- grouping – Science Talent Search progrmames.

UNIT VII Instructional Resources in Biological Science

Instructional Resource Centre- Planning- Class room Accessories- Preparation of Teaching Aids.

UNIT VIII Co-curricular activities in Biological Science

Strengthening Science Education- Community Resource- Garden- Excursions- Science Clubs- Nature calendar – Exhibitions, Science Fairs & Field trips

UNIT IX Real Science Projects

Organisms outside the class room – Organisms inside the classroom- The aquaculture project- The seed project- The Product Test and Rating the Project.

UNIT X Extension Education

Meaning – objectives -the success of the oriented programmes- Extension Teaching methods. Extension motivations and Technology programme-extension programme-planning of the extension education programme.

PRACTICALS :

1. Preparing microscopic slides
2. Practicing (3 sessions each of 10 minutes) class room interaction analysis and presenting the report
3. Preparing enrichment programme for the gifted and remedial programme for the slow learners.
4. Field Trip: Photo Album, Nature Album.

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